

## Appendix A

1. An array of at least two different chemical compounds attached to a support, the array having linear organization.
2. The array of claim 1, prepared by a method which comprises the steps of:  
providing a support having reactive functionalities;  
subjecting said support to a set of reagents or reaction conditions, wherein each of said reagents or reaction conditions cycles with a specific period along the support, and wherein each individual reagent or reaction condition in the set is identified as a function of a unique distance or time; and  
subjecting said support to one or more additional set of reagents or reaction conditions, wherein each of said reagents or reaction conditions cycles with a specific period along the support, and wherein each individual reagent or reaction condition in said one or more sets is identified as a function of unique distance or time, until a desired array of compounds is obtained.
3. The array of claim 1, prepared by a method which comprises the steps of:
  - a) providing a support having reactive functional groups,
  - b) winding the support around a geometric template,
  - c) dividing the surface of the template lengthwise into regions,
  - d) subjecting each region to one or more reagents or reaction conditions so as to attach reactive moieties or to modify the functional groups; and
  - e) repeating steps (b) through (d) until the desired library is obtained.
4. The array of claim 3, wherein the reactive moieties have additional functional groups which are masked by protecting groups, and wherein these protecting groups are removed prior to treatment with one or more reagents or reaction conditions.
5. The array of claim 1, wherein the identity of each compound in said array is uniquely

specified by its location on the support.

6. The array of claim 1, wherein each of said compounds is synthesized from one or more reagents, and wherein each of said one or more reagents is added at a specific repeat frequency, defined at a specific location on the support.

7. The array of claim 1, wherein the compounds are arranged one-dimensionally.

37. The array of claim 1, wherein the compounds are arranged linearly on the support.

38. The array of claim 1, wherein at least one compound is present at at least two different positions on the support.

39. The array of claim 1, wherein at least two compounds are each present at at least two different positions on the support, successive occurrences of each compound being separated by a constant interval.

40. The array of claim 1, wherein at least one compound is present at at least three different positions on the support, successive occurrences of the compound being separated by a constant interval.

41. The array of claim 1, wherein all compounds are present at at least two different positions on the support, successive occurrences of each compound being separated by a constant interval.

42. The array of claim 1, wherein each different compound is present at only one position on the support.

43. The array of claim 1, wherein the support has at least two distinct portions and the array comprises at least a first synthesis product attached to a first portion and a second synthesis product attached to a second portion.

44. The array of claim 43, wherein one or both of said first and second synthesis products include a plurality of distinct chemical structures.

45. The array of claim 43, wherein one or both of said first and second synthesis products include single chemical structures.

46. The array of claim 43, wherein both of said first and second synthesis products include single chemical structures.

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